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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Marc R. Amling

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ST. ONGE STEWARD JOHNSTON & REENS, LLC
986 BEDFORD STREET
STAMFORD, CT 06905-5619

EXAMINER

DURNFORD-GESZVAIN, DILLON

ART UNIT

PAPER NUMBER

2622

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/033,316	Applicant(s) AMLING ET AL.	
	Examiner Dillon Durnford-Geszvain	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,8-11,13-20,23-26 and 28-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,8-11,13-19,23-26,28,30-36 and 38-41 is/are rejected.
- 7) ☒ Claim(s) 4,20,29 and 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims **1-4, 8-11, 13-20, 23-26** and **28-41** are pending, and claims **5-7, 12, 21, 22, 27** and **42-48** are cancelled.

Response to Arguments

2. Applicant's arguments, see page 6 of Appeal Brief, filed 6/7/2007, with respect to claims **1, 15, 25** and **34** have been fully considered and are persuasive. The rejections of claims **1, 15, 25** and **34** has been withdrawn.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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4. Claims **1, 2, 8-11, 13-18, 23-26, 30-35** and **38-41** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims **1-3** of U.S. Patent No. US 7,316,646 (Amling) in view of US 6,707,490 (Kido).

5. As to claims **1, 15, 16, 18 25, 30, 31, 34, 38** and **39**, Claim **1** of Amling recites the limitations of a video imaging system comprising:

a camera control unit for processing a continuous stream of video (C7 L32-33 and L42-44 and note that the system is for viewing images and therefore it would necessarily process the images from the camer);

a cable, connected to the camera control unit, for providing the stream of video data (C7 L47-54);

a camera head, connected to said cable, for providing the stream of video data (C7 L37-41), said camera head including:

an imager (this is inherent);

a converter (this is inherent as the image data is transmitted as a digital serial signal (see C7 L57-59);

a serializer (this is inherent because the image data is being sent over a single pair of wires, C7 L55-56; also see C7 L57-59);

at least on serial driver (necessary for utilizing a digital serial protocol);

the camera control unit having at least one digital serial receiver (C7 L57-59) and is controlled based in part upon said control signal particular to said camera head (C7 L42-44).

What the claims of Amling do no recite is a timing generator in the camera head.

However, Kido teaches a timing generator in the camera head (Fig. 10) and it would have been obvious to include a timing generator in the camera head recited by Amling as this would be convenient for actuating the imager and converter of the camera head of Amling.

6. As to claims **2, 17, 26** and **35**, Claim **1** of Amling recites a multiplexer for multiplexing image signals and control signals (C7 L40-41 and L55-56).

7. As to claims **8-11, 13, 14, 23, 24, , 32, 33, 40** and **41**, Claim **3** of Amling recites using Low-Voltage Differential Signals for communicating between the camera head and camera control unit (C7 L60-62).

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims **1, 3, 8-11, 13-16, 18, 19, 23-25, 28, 30-34, 36** and **38-41** are rejected under 35 U.S.C. 103(a) as being anticipated by US 6,707,490 (Kido) in view of US 6,449,007 (Yokoyama) and US 6,836,290 (Chung).

10. As to claim **1**, Kido teaches a video imaging system comprising:
a camera control unit 2 (see Fig. 10) processing a continuous stream of digital video data (C8 L51-62);

a cable 32 (see Fig. 7), connected to said camera control unit 2, for transmitting the stream of digital video data to said camera control unit (C8 L6-11);

a camera head 3, connected to said cable, for providing the stream of digital video data (C8 L51-62), said camera head including:

an imager 303, for generating an analog stream of video data (C8 L51-62);

a timing generator 331, generating a timing signal particular to said camera head (C7 L1-8), the timing signal actuating said imager (C7 L1-8);

a converter 321, for converting the analog stream of video data into the stream of digital video data (C7 L50-55); and

a serializer 321, for serializing the stream of digital video data for transmission over said cable (C7 L50-55 and note that the analog image signal is converted into a 10-bit digital signal, effectively serializing the signal);

said camera control unit is controlled based at least in part upon said timing signal particular to said camera head (C7 L56-63, and note that the timing signal is different for a different effective pixel number and therefore the camera control unit 2 is controlled in accordance with" the timing signal particular to said camera head).

Kido does not teach the timing signal being sent to the camera control unit or using digital serial drivers or digital serial receivers. Yokoyama teaches inputting a timing signal from a camera head into a camera control unit as a means for performing synchronization (C6 L20-61).

Chung teaches an imager utilizing at least one digital serial driver 54 and one

digital serial receiver 56 (C2 L28-36).

The prior art contains all of the elements of claim **1** and one of ordinary skill in the art could have combined the elements of the prior art to create a camera that would yield the predictable result of sending a timing signal to a camera control unit for synchronization when the camera head and control unit are connected by a cable, and sent image signals over a digital serial driver and digital receiver combination.

11. As to claim **3**, see the rejection of claim **1** and note that Kido further teaches a video imaging system wherein said camera head 3 further comprises a processor 313 (see Fig. 10 of Kido).

12. As to claim **8**, see the rejection of claim **1** and note that none of Kido or Yokoyama teaches using digital serial receivers to receive data from a camera control unit at a camera head. However, Chung et al. would have considered using a receiver 56 in a camera head if two-way communication between the camera head and camera control unit (as is done in Kido) was desired instead of one-way communication between an imager and an image processor.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a receiver as taught by Chung in the camera head as taught by Kido in view of Yokoyama and Chung as this would provide a lower power and noise resistant form of communication.

13. As to claim **9**, see the rejection of claim **1** and note that Chung further teaches the driver 54 utilizing Low-Voltage Differential Signals (LVDS) (C2 L27-37).

14. As to claim **10**, see the rejection of claim **8** and note that Chung teaches the receiver 56 utilizing LVDS (C2 L27-37).

15. As to claim **11**, see the rejection of claim **1** and note that Kido and Yokoyama have been discussed above. What none of the above teaches is using a digital serial driver in the camera control unit. However, Chung teaches using digital serial drivers and receivers to communicate between an imager and an image processor. If two-way communication were desired (as is done in Kido), Chung would have considered using digital serial drivers to communicate both ways. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the digital serial drivers taught by Chung to perform communication between the camera control unit of Kido in view of Yokoyama and Chung as it is a low power noise resistant form of communication. This would include both communications from the camera head to the camera control unit and from the camera control unit to the camera head.

16. As to claim **13**, see the rejection of claim **11** and note that Chung further teaches the driver 54 utilizing LVDS (C2 L27-37).

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17. As to claim **14**, see the rejection of claim **1** and note that Chung teaches the receiver 56 utilizing LVDS (C2 L27-37).

18. Claim **15** is similar to claim **1** but has the additional limitation of a plurality of camera heads, being attachable to the camera control unit. This limitation is taught by Kido (C7 L56-63).

19. As to claim **16**, as discussed above, Kido teaches an A/D converter in the camera head (See Fig. 10).

20. As to claim **18**, as discussed above, Kido teaches a serializer in the camera head (see Fig. 10 and note that the analog image signal is converted into a 10-bit digital signal, effectively serializing the signal).

21. As to claim **19**, as discussed above, Kido teaches a processor in the camera head (See Fig. 10).

22. As to claims **23** and **24**, and as discussed above, Chung teaches the digital serial driver and receiver utilizing LVDS.

23. Claim **25** is similar to some of the limitations of claim **1** and is rejected for similar reasons.

24. As to claim **28**, and discussed above, Kido teaches a processor in the camera head (See Fig. 10).

25. As to claims **30** and **31**, Kido teaches formatting the camera control unit with data from the camera head (C7 L56-63).

26. As to claims **32** and **33**, and as discussed above, Chung teaches the digital serial driver and receiver utilizing LVDS.

27. Claims **34**, **36** and **38-41** correspond to claims **25**, **28** and **30-33** and are rejected for similar reasons.

Allowable Subject Matter

28. Claims **4**, **20**, **29** and **37** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

29. The following is a statement of reasons for the indication of allowable subject matter: the cited prior art neither anticipates nor renders obvious the claimed limitation

of the processor in the camera head having access to the memory in the camera head that contains camera head information.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dillon Durnford-Geszvain whose telephone number is (571)272-2829. The examiner can normally be reached on Monday through Friday 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye can be reached on (571) 272-7372. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Lin Ye/
Supervisory Patent Examiner, Art Unit 2622